

## **JAR Exhibit 3**

### **Cost of Capital Schedules**

**JAR Exhibit 3**  
**Schedule 1, Page 1**

**Verizon New Hampshire**  
**Overall Cost of Capital**

Recommended Result				
Verizon Capital Structure				
Type of Capital	Ratios	Cost Rate	Weighted Cost Rate	Pre-tax Cost Rate
	[A]			
Short-term Debt	18.80%	2.00% [B]	0.38%	0.38%
Long-term Debt	49.46%	6.43% [C]	3.18%	3.18%
Common Equity	31.74%	10.00% [D]	3.17%	5.36%
	100.00%		6.73%	8.92%

Source:

[A] Yahoo Finance and SEC 10Q

[B] Response to \_\_\_\_\_

[C] Bonds Online. Aaa to A2 spread of 0.45% added to Aaa corporate rate of 5.98%.  
 Result of 6.43% was compared to actual yield to maturity of Verizon New York bond issue  
 This bond, which matures in 2032 and is not callable has a yield to maturity of 6.315%.  
 Data was obtained on 1/17/03.

[D] JAR Exhibit 3

**Return on Equity Required to  
Earn Dr. Vander Weide's Recommended  
Cost of Capital**

Type of Capital	Verizon Capital Structure		Weighted Cost Rate	After-tax Cost Rate
	Ratios [A]	Cost Rate		
Short-term Debt	18.80%	2.00% [B]	0.38%	0.24%
Long-term Debt	49.46%	6.43% [C]	3.18%	2.07%
Common Equity	31.74%	46.90% [D]	14.88%	14.88%
	<u>100.00%</u>		<u>18.44%</u>	<u>17.20%</u>

[A] JAR Exhibit 3 Schedule 1, Page 1

[B] JAR Exhibit 3 Schedule 1, Page 1

[C] JAR Exhibit 3 Schedule 1, Page 1

[D] Return on equity required to make total return equal to Dr. Vander Weide's recommended 17.20% after-tax return on capital.  
17.20% was explained in technical session by Dr. Vander Weide.  
He said that the 17.93% in his testimony is a pre-tax return.  
The weighted cost rate shown above is the traditional way the overall cost of capital is shown in rate proceedings. It is neither pre-tax or post-tax. It is a hybrid number, with the debt pre-tax and the equity after tax.

**JAR Exhibit 3**  
**Schedule 1, Page 3**

Verizon Communications  
Capital Structure

	12/31/2001		6/30/2002	
Short-Term and Current Long-Term Debt	\$18,699	19.3%	\$16,969	18.8%
Other Current Liabilities				
Long Term Debt	45,657	47.1%	44,639	49.5%
Total Debt	<b>\$64,356</b>	<b>66.4%</b>	<b>\$61,608</b>	<b>68.3%</b>
Total Stock Holders Equity	<b>\$32,539</b>	<b>33.6%</b>	<b>\$28,642</b>	<b>31.7%</b>
Source: Yahoo	\$96,895	100.0%	\$90,250	100.0%

Verizon New Hampshire  
COST OF EQUITY SUMMARY

Current cost of equity based upon DCF	Average for Year ending 8/31/02		As of 8/31/2002	
Telecommunications Companies Single Stage DCF	<u>9.12%</u>	(A)	<u>9.16%</u>	(A)
Telecommunication Companies Multi-Stage DCF	<u>9.97%</u>	(B)	<u>10.22%</u>	(B)
ELECTRIC COMPANIES	9.78%	(C)	9.89%	(C)
GAS COMPANIES	9.43%	(D)	9.53%	(D)
WATER COMPANIES COVERED BY VALUE LINE	<u>9.58%</u>	(E)	<u>9.65%</u>	(E)
Average non-telecom from DCF analysis	<u>9.60%</u>		<u>9.69%</u>	
Risk Premium/CAPM				
	Low end of Range		High end of Range	
Based upon Average Return over inflation In all major sub-periods from 1802 through 1997 (Major sub-periods are 1802-1870, 1871-1925, and 1926-1997)	7.95%	(F)	8.46%	(F)
Based upon analysis of historic returns from 1926-2001: Adjusted for Telecom Specific Risk Results for Equity of Average Risk	7.55%	(G)	7.90%	(G)
Average	<u>7.75%</u>		<u>8.18%</u>	
Midpoint	<u>7.97%</u>			
Results based upon DCF (Giving primary weight to single-stage DCF)			10.00%	
Recommended low end of range based upon Risk Premium/CAPM method			8.00%	
Recommended Equity Cost Rate				
Adjustment for Capital Structure				
Recommended cost of equity				

Source:

- (A) Schedule JAR 5, P. 1
- (B) Schedule JAR 6, P. 2
- (C) Schedule JAR 5, P. 3
- (D) Schedule JAR 5, P. 4
- (E) Schedule JAR 5, P. 2
- (F) Schedule JAR 9
- (G) Schedule JAR 10, P. 1

**Please note there is no Schedule 3 to Exhibit 3. The next schedule is Schedule 4.**

COMPARATIVE COMPANIES  
SELECTED FINANCIAL DATA

VL	Book Per Sh. Dec. 99	[1] [A]	[2] [A]	Book Per Sh. Dec. 00	[3] [A]	Book Per Sh. Dec. 01	[4] [A]	Book Per Sh. Dec. 02	[5] [B]	Market High for Year	[6] [B]	Price Low for Year	[7] [B]	Market At	[8] [C]	Div. Rate	[9] [C]	Avg. Year	[10] [A]	Div. Rate	[11] [D]	Avg. Year	[12] [D]
RBGS																							
Bell South	\$7.87	\$9.03	\$9.90	\$10.80	\$	\$23.32	\$42.93	\$20.10	2.14	3.03	\$0.80	3.43%	2.54%										
SBC Communications	\$7.87	\$9.00	\$9.69	\$10.50	\$	\$24.74	\$47.49	\$22.20	2.36	3.45	\$1.08	4.37%	3.10%										
Verizon	\$10.27	\$12.19	\$11.55	\$13.13	\$	\$25.95	\$48.91	\$23.00	2.52	3.20	\$1.54	4.76%	3.76%										
	\$8.86	\$10.27	\$10.92	\$11.88	\$	\$26.35	\$48.79	\$22.77	2.26	3.23	\$1.14	4.23%	3.13%										

**ELECTRIC COMPANIES**

Ameren	5	\$22.52	\$23.30	\$24.25	\$25.90	\$	\$44.77	\$45.25	\$34.79	1.73	1.60	\$2.54	5.67%	6.35%											
Progress Energy (CP&L+Flori)	1	\$21.38	\$26.32	\$27.45	\$29.45	\$	\$48.06	\$52.70	\$37.98	1.63	1.59	\$2.18	4.54%	4.81%											
Cleco Corporation	5	\$9.44	\$10.04	\$10.99	\$11.75	\$	\$16.11	\$24.89	\$11.70	1.37	1.63	\$0.90	5.99%	4.92%											
Duke Energy	1	\$25.31	\$28.01	\$28.51	\$30.01	\$	\$42.19	\$47.40	\$32.11	2.57	3.13	\$2.62	4.99%	4.99%											
DPL Inc.	5	\$5.20	\$5.80	\$6.59	\$6.55	\$	\$12.35	\$17.40	\$12.11	2.57	3.13	\$2.62	4.99%	4.99%											
DTE Inc.	1	\$18.78	\$14.02	\$9.09	\$9.20	\$	\$15.13	\$22.25	\$10.92	1.64	1.81	\$1.00	6.61%	6.03%											
DTE Energy Co.	5	\$26.95	\$28.15	\$28.48	\$30.65	\$	\$43.85	\$46.84	\$33.05	1.43	1.35	\$2.06	4.70%	5.16%											
Energy East (NYSEG, CMP, CT)	1	\$12.84	\$14.59	\$15.26	\$17.10	\$	\$21.55	\$22.53	\$15.78	1.26	1.18	\$0.96	4.45%	5.01%											
FPL Group, Inc.	1	\$30.07	\$31.82	\$34.20	\$37.00	\$	\$58.38	\$65.30	\$45.06	1.58	1.55	\$2.32	3.97%	4.20%											
Idacorp, Inc.	1,1	\$20.02	\$21.82	\$23.15	\$24.25	\$	\$27.70	\$41.12	\$21.62	1.14	1.32	\$1.86	6.71%	5.93%											
IPALCO Enterprises	5	\$26.57	\$25.31	\$23.81	\$24.40	\$	\$43.38	\$48.20	\$34.00	1.78	1.71	\$2.12	4.89%	5.18%											
Nstar (Boston Edison)	1	\$26.00	\$28.09	\$29.46	\$31.50	\$	\$35.51	\$46.67	\$27.40	1.06	1.22	\$1.60	4.77%	4.32%											
Primatech	1	\$16.21	\$17.21	\$17.60	\$18.00	\$	\$21.99	\$25.31	\$19.63	1.41	1.34	\$1.00	4.55%	4.78%											
Puget Energy, Inc.	1,1	\$16.24	\$16.61	\$15.95	\$15.65	\$	\$21.99	\$25.31	\$19.63	1.41	1.34	\$1.00	4.55%	4.78%											
UIL Holdings	1	\$32.59	\$34.03	\$35.42	\$36.15	\$	\$45.10	\$58.86	\$37.24	1.25	1.34	\$2.68	6.39%	5.99%											
<b>AVERAGE</b>		\$20.94	\$21.57	\$21.83	\$23.00	\$	\$32.52	\$39.75	\$25.96	1.53	1.56	\$1.71	5.17%	5.19%											

**GAS COMPANIES**

Cascade Natural Gas	3	\$10.36	\$10.79	\$11.01	\$11.25	\$	\$20.45	\$23.27	\$15.50	1.82	1.74	\$0.96	4.95%	4.95%											
NIW Natural Gas	3	\$15.90	\$17.95	\$18.50	\$19.50	\$	\$25.95	\$49.00	\$19.09	1.80	2.05	\$1.64	6.14%	5.49%											
NIW Natural Gas	3	\$15.90	\$17.95	\$18.50	\$19.50	\$	\$25.95	\$49.00	\$19.09	1.80	2.05	\$1.64	6.14%	5.49%											
People's Energy	3	\$21.66	\$22.02	\$22.75	\$24.65	\$	\$32.79	\$42.90	\$27.80	1.33	1.49	\$2.08	6.34%	5.89%											
Piedmont Natural Gas	3	\$15.71	\$16.52	\$17.26	\$19.40	\$	\$36.72	\$37.99	\$27.35	1.89	1.78	\$1.60	4.36%	4.90%											
South Jersey Industries	3	\$16.61	\$17.54	\$18.57	\$19.60	\$	\$33.45	\$36.65	\$28.22	1.71	1.70	\$1.50	4.48%	4.82%											
Southwest Gas	3	\$16.31	\$16.82	\$17.27	\$19.45	\$	\$22.75	\$25.35	\$16.11	1.17	1.18	\$0.82	3.60%	3.77%											
WGL Holdings	3	\$14.72	\$15.31	\$16.24	\$16.90	\$	\$24.54	\$29.75	\$19.25	1.45	1.48	\$1.27	5.18%	5.19%											
<b>AVERAGE</b>		\$15.16	\$16.56	\$17.22	\$18.38	\$	\$28.75	\$34.40	\$22.05	1.59	1.60	\$1.42	4.89%	4.95%											

Note: Providence Gas was excluded because it was purchased by Southern Union

**WATER COMPANIES COVERED BY VALUE LINE**

American States Water Co.		\$11.82	\$12.74	\$13.22	\$14.15	\$	\$24.90	\$41.98	\$20.25	1.76	2.27	\$0.87	3.49%	2.79%											
American Water Works		\$16.80	\$16.90	\$17.58	\$18.30	\$	\$44.30	\$44.33	\$33.81	2.42	2.18	\$0.98	2.21%	2.51%											
California Water Service		\$13.43	\$12.90	\$12.95	\$12.85	\$	\$26.45	\$27.74	\$20.47	2.06	1.87	\$1.12	4.23%	4.65%											
Philadelphia Suburban		\$5.71	\$6.42	\$6.91	\$7.50	\$	\$20.07	\$30.32	\$16.02	2.68	3.22	\$0.53	2.63%	2.28%											
<b>es- Estimated by Value Line</b>		\$11.94	\$12.24	\$12.67	\$13.20	\$	\$28.93	\$35.09	\$22.64	2.23	2.38	\$0.87	3.14%	3.08%											

Sources: (A) Most current Value Line at time of prep. of schedule.  
(B) Yahoo Finance  
(C) Market price divided by book value  
(D) Dividend rate divided by market price

COMPARATIVE COMPANIES  
EARNINGS PER SHARE AND RETURN ON EQUITY

JAR Exhibit 3  
Schedule 4, Page 2

	(1) EPS 2001	(2) EPS 2002	(3) Return on Eq. 2002	(4) Value Line Future Exp. Return on Eq. 2001
	[A]	[A]	[B]	[A]
Bell South	\$2.10	\$1.45	13.94%	16.50%
SBC Communications	\$2.35	\$2.50	22.76%	19.50%
Verizon	\$3.60	\$3.50	22.60%	24.22%
	\$2.48	\$2.27	20.18%	23.66%

ELECTRIC COMPANIES

Ameren	\$3.41	\$3.15	12.56%	12.50%
Progress Energy (CP&L-Florida)	\$3.43	\$3.90	13.71%	12.00%
Chico Corporation	\$1.41	\$1.45	11.52%	10.00%
Duke Energy	\$3.21	\$3.15	11.57%	10.50%
DPL Inc.	\$1.74	\$0.95	14.14%	27.50%
DGE Inc.	\$0.91	\$1.20	13.12%	13.50%
DTE Energy Co.	\$2.14	\$3.75	12.68%	11.50%
Energy East (NYSEG, CMP, CT)	\$2.00	\$1.60	9.89%	10.50%
FPL Group, Inc.	\$4.62	\$4.75	13.34%	11.00%
Idecorp, Inc.	\$3.35	\$2.35	9.92%	10.00%
IPALCO Enterprises				
Natar (Boston Edison)	\$3.27	\$3.25	13.48%	14.00%
PNM Resources	\$1.85	\$1.70	11.44%	10.50%
Portland General Electric	\$1.80	\$1.95	11.22%	10.50%
Puget Energy, Inc.	\$1.22	\$1.20	7.67%	10.00%
ULI Holdings	\$4.21	\$3.35	9.36%	9.50%
AVERAGE	\$2.70	\$2.85	11.85%	12.47%
				12.90%

GAS COMPANIES

Cascade Natural Gas	\$1.47	\$1.15	10.33%	14.00%
Entergy	\$2.71	\$2.85	11.59%	13.49%
Victor Natural Gas	\$1.88	\$1.85	9.60%	10.00%
Prospres Energy	\$3.16	\$2.75	11.60%	11.50%
Piedmont Natural Gas	\$2.02	\$1.95	10.64%	14.12%
South Jersey Industries	\$2.29	\$2.45	12.84%	12.00%
Southwest Gas	\$1.15	\$1.45	7.90%	11.50%
WGL Holdings	\$1.88	\$1.20	7.24%	8.00%
AVERAGE	\$2.11	\$1.93	10.92%	12.88%
				12.53%

WATER COMPANIES COVERED BY VALUE LINE

American States Water Co.	\$1.35	\$1.40	10.75%	11.00%
American Water Works	\$1.69	\$1.70	9.86%	11.50%
California Water Service	\$0.94	\$1.15	8.90%	11.50%
Philadelphia Suburban	\$0.85	\$0.90	13.50%	14.00%
	\$1.21	\$1.29	10.76%	12.00%
				10.54%

== Estimated by Value Line

Source:

[A] Value Line  
[B] Earnings Per Share divided by average book value. Book value shown on JAR Exhibit 3

NOTE: Value Line forecasted a 23% earned return on equity for DPL Inc. for 2003-2005 in its and 21% for 2004-2006 in its April 2001 edition. The forecasted return on equity for DPL Inc. for 2003-2005 in its 23% is much higher than what is sustainable over the long-term.



RETURN ON EQUITY IMPLIED IN  
ZACK'S CONSENSUS GROWTH RATES

RETURN ON EQUITY IMPLIED IN ZACK'S CONSENSUS GROWTH RATES										JAR Exhibit 3 Schedule 4, Page 3	
Y/E Book [3]	Earnings 2002 [A]	Dividends 2002 [B]	Zack's 5 Year Growth Rate 9/18/2002 [B]	Y/E Book 2006 [C]	Y/E Book 2007 [C]	Earnings 2007 at Zack's Growth [C]	Equity to achieve Zack's Growth [C]	Return on Equity [C]	VALUE LINE BETA		
	[A]	[B]	[B]	[C]	[C]	[C]	[C]	[C]	[A]		
	\$10.90	\$1.45	\$0.80	6.90%	\$13.98	\$14.89	\$2.02	14.02%	BLS	0.85	
	\$10.50	\$2.30	\$1.08	6.94%	\$16.29	\$17.99	\$3.22	18.77%	SBC	0.85	
	\$13.65	\$3.05	\$1.54	6.94%	\$20.68	\$22.71	\$4.11	18.94%	VZ	1.05	
	\$11.68	\$2.27	\$1.14	6.66%	\$16.53	\$17.53	\$3.12	17.24%		0.92	

JAR Exhibit 3  
Schedule 4, Page 3

ELECTRIC COMPANIES

Ameren	\$25.90	\$3.15	\$2.54	4.38%	\$28.62	\$29.37	\$3.90	13.46%	AEE	0.60
Progress Energy (CP&L+Florida Progress)	\$28.45	\$3.90	\$2.18	6.88%	\$37.60	\$40.00	\$5.44	14.02%	PGN	0.65
Cleco Corporation	\$11.75	\$1.45	\$0.90	6.00%	\$14.53	\$15.40	\$2.79	13.26%	EDL	0.65
Con Edison	\$27.75	\$3.15	\$2.42	8.13%	\$26.44	\$27.75	\$3.75	11.26%	EDL	0.75
DPL Inc.	\$8.55	\$0.80	\$0.62	6.13%	\$6.60	\$6.61	\$1.40	21.26%	DPL	0.55
DTE Inc.	\$9.20	\$1.20	\$1.00	5.25%	\$10.11	\$10.37	\$1.55	15.14%	DOE	0.60
DTE Energy Co.	\$30.65	\$3.75	\$2.06	6.57%	\$38.60	\$40.92	\$5.15	12.97%	DTE	0.60
Energy East (NYSEG, CMP, CT Natural and	\$17.10	\$1.60	\$0.96	6.00%	\$20.07	\$20.92	\$2.14	10.45%	EAS	0.65
FPL Group, Inc.	\$37.00	\$4.75	\$2.32	6.13%	\$48.30	\$51.58	\$6.40	12.81%	FPL	0.50
Idacorp, Inc.	\$24.25	\$2.35	\$1.86	7.00%	\$26.58	\$27.27	\$3.30	12.24%	IDA	0.55
IPALCO Enterprises	\$24.40	\$3.25	\$2.12	7.33%	\$29.81	\$31.42	\$4.63	15.12%	NST	0.60
Nstar (Boston Edison)	\$31.50	\$3.70	\$1.60	6.50%	\$41.36	\$43.23	\$5.07	12.50%	NST	0.50
Pinnacle West	\$17.75	\$1.65	\$1.00	6.00%	\$21.00	\$21.37	\$2.37	10.53%	POM	0.50
Potomac Electric Power	\$15.65	\$1.20	\$1.00	6.00%	\$16.59	\$16.85	\$1.61	9.61%	PSD	0.65
Ugel Energy, Inc.	\$36.15	\$3.35	\$2.88	2.50%	\$38.15	\$38.68	\$3.79	9.87%	UIL	0.60
AVERAGE				6.00%				13.09%		0.58

GAS COMPANIES

Cascade Natural Gas	\$11.25	\$1.15	\$0.96	5.25%	\$12.12	\$12.36	\$1.49	16.78%	CGC	0.65
Nicor	\$16.60	\$2.65	\$1.84	5.75%	\$20.33	\$21.30	\$2.50	12.26%	CGC	0.60
N.W. Natural Gas	\$16.60	\$1.65	\$1.06	5.83%	\$20.33	\$21.30	\$2.50	12.26%	NWN	0.60
Peoples Energy	\$24.60	\$2.75	\$2.06	5.83%	\$27.74	\$28.63	\$3.65	12.95%	PCL	0.75
Producers Natural Gas	\$19.40	\$1.95	\$1.60	4.67%	\$20.97	\$21.41	\$2.45	11.56%	PNY	0.65
South Jersey Industries	\$19.60	\$2.45	\$1.50	6.00%	\$25.28	\$26.38	\$3.28	13.31%	SJI	0.50
Southwest Gas	\$19.45	\$1.45	\$0.82	6.80%	\$22.43	\$23.30	\$2.01	8.81%	SWX	0.70
WGL Holdings	\$16.90	\$1.20	\$1.27	3.65%	\$16.58	\$16.50	\$1.44	8.68%	WGL	0.65
AVERAGE				5.50%				11.89%		0.66

WATER COMPANIES COVERED BY VALUE LINE

American States Water Co.	\$13.22	\$1.40	\$0.87	4.00%	\$15.57	\$16.22	\$1.70	10.72%	AMR	0.65
American Water Works	\$17.58	\$1.70	\$0.98	7.00%	\$21.00	\$22.01	\$2.38	11.09%	AMR	0.50
California Water Service	\$12.95	\$1.15	\$1.12	6.00%	\$13.09	\$13.13	\$1.54	11.74%	CWT	0.60
Philadelphia Suburban	\$6.91	\$0.90	\$0.53	7.63%	\$8.70	\$9.24	\$1.30	14.49%	PSC	0.60
AVERAGE				6.16%				12.01%		0.59

[A] Value Line  
[B] Yahoo financial website  
[C] Projected return on equity is obtained by escalating both dividends and earnings per share by the stated growth rate, and adding earnings and subtracting dividends in each year to determine the book value.  
s January 2001 edition.

RBOCS  
DISCOUNTED CASH FLOW (DCF) INDICATED COST OF EQUITY

JAR Exhibit 3  
Schedule 5, Page 1

		BASED ON AVERAGE MARKET PRICE FOR Year Ending 8/31/02	BASED UPON MARKET PRICE AS OF 8/31/2002
1 Dividend Yield On Market Price	[B]	3.13%	3.13%
2 Retention Ratio:			
a) Market-to-book	[B]	3.23	2.26
b) Div. Yld on Book	[C]	10.11%	7.06%
c) Return on Equity	[A]	16.00%	13.00%
d) Retention Rate	[D]	36.84%	45.66%
3 Reinvestment Growth	[E]	5.89%	5.94%
4 New Financing Growth	[F]	0.00%	0.00%
5 Total Estimate of Investor Anticipated Growth	[G]	5.89%	5.94%
6 Increment to Dividend Yield for Growth to Next Year	[H]	0.09%	0.09%
7 Indicated Cost of Equity	[I]	9.12%	9.16%

Some of the Considerations for determining Future Expected Return on Equity:

Source:

		From 2001 Verizon NJ		
[A]	Value Line Expectation	19.50%	17.83%	Schedule 4, Page 2
	Expectation Derived from Zack's Consensus Growth Rate		17.24%	Schedule 4, Page 3
	Earned Return on Equity in 2002	20.53%	20.18%	Schedule 4, Page 2
	Earned Return on Equity in 2001	22.01%	23.85%	Schedule 4, Page 2
	Value Line Telecommunications Companies	12.00%	7.00%	Page 720 of 7/5/02 Value Line
[B]	JAR Exhibit 3		6.50%	10/4/02 Value Line
[C]	Line 1 x Line 2a			
[D]	1- Line 2b/Line 2c			
[E]	Line 2c x Line 2d			
[F]	Estimated impact of dilution or premium due to sale of equity at other than book value. Computed based upon mathematically derived result based upon the Value Line forecasted external financing rate.			
	[M/B X (Ext. Fin Rate+1)/(M/B + Ext. Fin. Rate-1)	Ext. Fin. rate used =		0.00% [J]
[G]	Line 3 + Line 4			
[H]	Line 1 x one-half of line 5			
[I]	Line 1 + Line 5 + Line 6			
[J]	Schedule 8			

**COMPARATIVE WATER COMPANIES**  
**DISCOUNTED CASH FLOW (DCF) INDICATED COST OF EQUITY**

**JAR Exhibit 3**  
**Schedule 5, Page 2**

		BASED ON AVERAGE MARKET PRICE FOR Year Ending 8/31/02	BASED UPON MARKET PRICE AS OF 8/31/2002
Market-to-book			
1 Dividend Yield On Market Price	[B]	3.06%	3.14%
2 Retention Ratio:			
a)	[B]	2.38	2.23
b) Div. Yld on Book	[C]	7.28%	7.00%
c) Return on Equity	[A]	11.00%	11.00%
d) Retention Rate	[D]	33.77%	36.36%
3 Reinvestment Growth	[E]	3.72%	4.00%
4 New Financing Growth	[F]	2.71%	2.41%
5 Total Estimate of Investor Anticipated Growth	[G]	6.43%	6.41%
6 Increment to Dividend Yield for Growth to Next Year	[H]	0.10%	0.10%
7 Indicated Cost of Equity	[I]	9.58%	9.65%

**Some of the Considerations for determining Future Expected Return on Equity:**

Source:

[A]	Value Line Expectation	12.00%	JAR Exhibit 3
	Expectation Derived from Zack's Consensus Growth Rate	12.01%	Schedule 4, Page 3
	Earned Return on Equity in 2000	10.76%	Schedule 4, Page 2
	Earned Return on Equity in 1999	10.54%	Schedule 4, Page 2
	For recommended expectation, see text.		
[B]	JAR Exhibit 3 and		
	Schedule 4, Page 2		
[C]	Line 1 x Line 2a		
[D]	1- Line 2b/Line 2c		
[E]	Line 2c x Line 2d		
[F]	Estimated impact of dilution or premium due to sale of equity at other than book value. Computed based upon mathematically derived result based upon the historical external financing rate.		
	$(M/B \times (\text{Ext. Fin Rate} + 1) / (M/B + \text{Ext. Fin. Rate} - 1))$	Ext. Fin. rate used =	2.00% [J]
[G]	Line 3 + Line 4		
[H]	Line 1 x one-half of line 5		
[I]	Line 1 + Line 5 + Line 6		
[J]	Derived from share growth forecast in Value Line		

**COMPARATIVE ELECTRIC COMPANIES  
DISCOUNTED CASH FLOW (DCF) INDICATED COST OF EQUITY**

JAR Exhibit 3  
Schedule 5, Page 3

		BASED ON AVERAGE MARKET PRICE FOR Year Ending 8/31/02	BASED UPON MARKET PRICE AS OF 8/31/2002
1 Dividend Yield On Market Price	[B]	5.19%	5.17%
2 Retention Ratio:			
a) Market-to-book	[B]	1.56	1.53
b) Div. Yld on Book	[C]	8.08%	7.93%
c) Return on Equity	[A]	12.00%	12.00%
d) Retention Rate	[D]	32.63%	33.94%
3 Reinvestment Growth	[E]	3.92%	4.07%
4 New Financing Growth	[F]	0.55%	0.53%
5 Total Estimate of Investor Anticipated Growth	[G]	4.47%	4.60%
6 Increment to Dividend Yield for Growth to Next Year	[H]	0.12%	0.12%
7 Indicated Cost of Equity	[I]	9.78%	9.89%

**Some of the Considerations for determining Future Expected Return on Equity:**

Source:

[A]	Value Line Expectation	12.47%	Schedule 4, Page 2
	Expectation Derived from Zack's Consensus Growth Rate	13.09%	Schedule 4, Page 3
	Earned Return on Equity in 2002	11.85%	Schedule 4, Page 2
	Earned Return on Equity in 2001	12.90%	Schedule 4, Page 2
	For recommended expectation, see text.		
[B]	JAR Exhibit 3		
[C]	Line 1 x Line 2a		
[D]	1- Line 2b/Line 2c		
[E]	Line 2c x Line 2d		
[F]	Estimated impact of dilution or premium due to sale of equity at other than book value. Computed based upon mathematically derived result based upon the Value Line forecasted external financing rate.		
	$\frac{[M/B \times (Ext. Fin. Rate + 1)]}{[M/B + Ext. Fin. Rate - 1]}$	Ext. Fin. rate used = 1.00%	[J]
[G]	Line 3 + Line 4		
[H]	Line 1 x one-half of line 5		
[I]	Line 1 + Line 5 + Line 6		
[J]	Schedule 8		

**COMPARATIVE GAS COMPANIES  
DISCOUNTED CASH FLOW (DCF) INDICATED COST OF EQUITY**

JAR Exhibit 3  
Schedule 5, Page 4

		BASED ON AVERAGE MARKET PRICE FOR Year Ending 8/31/02	BASED UPON MARKET PRICE AS OF 8/31/2002
1 Dividend Yield On Market Price	[B]	4.95%	4.89%
2 Retention Ratio:			
a) Market-to-book	[B]	1.60	1.59
b) Div. Yld on Book	[C]	7.93%	7.76%
c) Return on Equity	[A]	12.00%	12.00%
d) Retention Rate	[D]	33.89%	35.33%
3 Reinvestment Growth	[E]	4.07%	4.24%
4 New Financing Growth	[F]	0.30%	0.29%
5 Total Estimate of Investor Anticipated Growth	[G]	4.37%	4.53%
6 Increment to Dividend Yield for Growth to Next Year	[H]	0.11%	0.11%
7 Indicated Cost of Equity	[I]	9.43%	9.53%

**Some of the Considerations for determining Future Expected Return on Equity:**

Source:

[A]	Value Line Expectation	12.88%	Schedule 4, Page 2
	Expectation Derived from Zack's Consensus Growth Rate	11.89%	Schedule 4, Page 3
	Earned Return on Equity in 2002	10.82%	Schedule 4, Page 2
	Earned Return on Equity in 2001	12.53%	Schedule 4, Page 2
	For recommended expectation, see text.		
[B]	JAR Exhibit 3 and		
	Schedule 4, Page 2		
[C]	Line 1 x Line 2a		
[D]	1- Line 2b/Line 2c		
[E]	Line 2c x Line 2d		
[F]	Estimated impact of dilution or premium due to sale of equity at other than book value. Computed based upon mathematically derived result based upon the historical external financing rate.		
	$(M/B \times (\text{Ext. Fin Rate} + 1)) / (M/B + \text{Ext. Fin. Rate} - 1)$	Ext. Fin. rate used =	0.50% [J]
[G]	Line 3 + Line 4		
[H]	Line 1 x one-half of line 5		
[I]	Line 1 + Line 5 + Line 6		
[J]	Schedule 8		

RBOCS FULL DCF METHOD Based on Market Price on 8/31/2002															
Year	[1] Year End Book	[2] Retentio Rate	[3] Dividend	[4] Earnings Per Share	[5] Retained Earnings Per Share	[6] External Financin Rate	[7] Incremer to book from Ext. Fin.	[8] Total Increment to Book	[9] Market Price	[10] Mkt to Book	[11] Expect. Ret. on Equity	[12] Cash Fl. from Stock Trans.	[13] Cash Fl. from Div.	[14] Total Cash Flow	
	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I] M/B Change	[J] 0.00%	[K]	[L]	[M]	[N]	
First Stage	2002	\$11.68	50.15%	\$1.13	\$2.27	\$1.14			\$26.35	2.26		(\$26.35)		(\$26.35)	
	2003	\$12.93	52.93%	\$1.18	\$2.50	\$1.32			\$29.17	2.26	20.31%		\$1.18	\$1.18	
	2004	\$14.46	56.79%	\$1.21	\$2.80	\$1.59		\$1.32	\$32.62	2.26	20.44%		\$1.21	\$1.21	
	2005	\$15.99	59.88%	\$1.24	\$3.10	\$1.86		\$1.59	\$36.06	2.26	20.36%		\$1.24	\$1.24	
	2006	\$17.52	58.82%	\$1.28	\$3.10	\$1.82		\$1.86	\$39.51	2.26	18.50%		\$1.28	\$1.28	
Second Stage	2007	\$18.59	45.66%	\$1.28	\$2.35	\$1.07	0.00%	\$0.00	\$41.93	2.26	13.00%		\$1.28	\$1.28	
	2008	\$19.73	45.66%	\$1.35	\$2.49	\$1.14	0.00%	\$0.00	\$44.49	2.26	13.00%		\$1.35	\$1.35	
	2009	\$20.93	45.66%	\$1.44	\$2.64	\$1.21	0.00%	\$0.00	\$47.21	2.26	13.00%		\$1.44	\$1.44	
	2010	\$22.21	45.66%	\$1.52	\$2.80	\$1.28	0.00%	\$0.00	\$50.10	2.26	13.00%		\$1.52	\$1.52	
	2011	\$23.57	45.66%	\$1.62	\$2.98	\$1.36	0.00%	\$0.00	\$53.17	2.26	13.00%		\$1.62	\$1.62	
	2012	\$25.01	45.66%	\$1.72	\$3.16	\$1.44	0.00%	\$0.00	\$56.42	2.26	13.00%		\$1.72	\$1.72	
	2013	\$26.54	45.66%	\$1.82	\$3.35	\$1.53	0.00%	\$0.00	\$59.87	2.26	13.00%		\$1.82	\$1.82	
	2014	\$28.17	45.66%	\$1.93	\$3.56	\$1.62	0.00%	\$0.00	\$63.53	2.26	13.00%		\$1.93	\$1.93	
	2015	\$29.89	45.66%	\$2.05	\$3.77	\$1.72	0.00%	\$0.00	\$67.42	2.26	13.00%		\$2.05	\$2.05	
	2016	\$31.72	45.66%	\$2.18	\$4.00	\$1.83	0.00%	\$0.00	\$71.54	2.26	13.00%		\$2.18	\$2.18	
	2017	\$33.66	45.66%	\$2.31	\$4.25	\$1.94	0.00%	\$0.00	\$75.92	2.26	13.00%		\$2.31	\$2.31	
	2018	\$35.72	45.66%	\$2.45	\$4.51	\$2.06	0.00%	\$0.00	\$80.56	2.26	13.00%		\$2.45	\$2.45	
	2019	\$37.90	45.66%	\$2.60	\$4.79	\$2.18	0.00%	\$0.00	\$85.49	2.26	13.00%		\$2.60	\$2.60	
	2020	\$40.22	45.66%	\$2.76	\$5.08	\$2.32	0.00%	\$0.00	\$90.72	2.26	13.00%		\$2.76	\$2.76	
	2021	\$42.68	45.66%	\$2.93	\$5.39	\$2.46	0.00%	\$0.00	\$96.27	2.26	13.00%		\$2.93	\$2.93	
	2022	\$45.29	45.66%	\$3.11	\$5.72	\$2.61	0.00%	\$0.00	\$102.16	2.26	13.00%		\$3.11	\$3.11	
	2023	\$48.06	45.66%	\$3.30	\$6.07	\$2.77	0.00%	\$0.00	\$108.41	2.26	13.00%		\$3.30	\$3.30	
	2024	\$51.00	45.66%	\$3.50	\$6.44	\$2.94	0.00%	\$0.00	\$115.04	2.26	13.00%		\$3.50	\$3.50	
	2025	\$54.12	45.66%	\$3.71	\$6.83	\$3.12	0.00%	\$0.00	\$122.08	2.26	13.00%		\$3.71	\$3.71	
	2026	\$57.43	45.66%	\$3.94	\$7.25	\$3.31	0.00%	\$0.00	\$129.55	2.26	13.00%		\$3.94	\$3.94	
	2027	\$60.95	45.66%	\$4.18	\$7.69	\$3.51	0.00%	\$0.00	\$137.47	2.26	13.00%		\$4.18	\$4.18	
	2028	\$64.68	45.66%	\$4.44	\$8.17	\$3.73	0.00%	\$0.00	\$145.88	2.26	13.00%		\$4.44	\$4.44	
	2029	\$68.63	45.66%	\$4.71	\$8.67	\$3.96	0.00%	\$0.00	\$154.80	2.26	13.00%		\$4.71	\$4.71	
	2030	\$72.83	45.66%	\$5.00	\$9.20	\$4.20	0.00%	\$0.00	\$164.27	2.26	13.00%		\$5.00	\$5.00	
	2031	\$77.29	45.66%	\$5.30	\$9.76	\$4.46	0.00%	\$0.00	\$174.32	2.26	13.00%		\$5.30	\$5.30	
	2032	\$82.01	45.66%	\$5.63	\$10.35	\$4.73	0.00%	\$0.00	\$184.99	2.26	13.00%		\$5.63	\$5.63	
	2033	\$87.03	45.66%	\$5.97	\$10.99	\$5.02	0.00%	\$0.00	\$196.30	2.26	13.00%		\$5.97	\$5.97	
	2034	\$92.35	45.66%	\$6.34	\$11.66	\$5.32	0.00%	\$0.00	\$208.31	2.26	13.00%		\$6.34	\$6.34	
	2035	\$98.00	45.66%	\$6.72	\$12.37	\$5.65	0.00%	\$0.00	\$221.05	2.26	13.00%		\$6.72	\$6.72	
	2036	\$104.00	45.66%	\$7.14	\$13.13	\$6.00	0.00%	\$0.00	\$234.58	2.26	13.00%		\$7.14	\$7.14	
	2037	\$110.36	45.66%	\$7.57	\$13.93	\$6.36	0.00%	\$0.00	\$248.93	2.26	13.00%		\$7.57	\$7.57	
	2038	\$117.11	45.66%	\$8.03	\$14.79	\$6.75	0.00%	\$0.00	\$264.15	2.26	13.00%		\$8.03	\$8.03	
	2039	\$124.28	45.66%	\$8.53	\$15.69	\$7.16	0.00%	\$0.00	\$280.31	2.26	13.00%		\$8.53	\$8.53	
	2040	\$131.88	45.66%	\$9.05	\$16.65	\$7.60	0.00%	\$0.00	\$297.46	2.26	13.00%		\$9.05	\$9.05	
	2041	\$139.95	45.66%	\$9.60	\$17.67	\$8.07	0.00%	\$0.00	\$315.66	2.26	13.00%		\$9.60	\$9.60	
	2042	\$148.51	45.66%	\$10.19	\$18.75	\$8.56	0.00%	\$0.00	\$334.97	2.26	13.00%	\$334.97	\$10.19	\$345.15	
														Internal Rate of Return	
														10.22%	

Source:

- [A] First Stage is average from Value Line. Second stage is prior years' book plus value from Col.[8]  
 [B] First Stage is (Col. [4]-Col. [3])/Col. [4]. For second stage, see result on Schedule 5, Page 1  
 [C] First Stage is from Value Line. Second stage is Col. [4] x (1-Col. [2])  
 [D] First Stage is from Value line. Second stage is average of current and prior year's value from Col. [1] x Col. [11]  
 [E] Col. [4] - Col. [3] [J] JAR Exhibit 3  
 [F] Schedule 8 [K] First stage is Col. [4]/Avg. of Current and prior year's Col. [1]. Second stage is from JAR Exhibit 3  
 [G] Col. [5] + Col. [7] [L] - Col. [9] for year of purchase, + Col. [9] for year of sale  
 [H] Col. [7] + Col. [8] [M] Col. [3]  
 [I] Col. [1] x Col. [10] [N] Col. [12] + Col. [13]

RBOCS FULL DCF METHOD Based on Market Price on 8/31/2002														JAR Exhibit 3 Schedule 6, Page 2	
Year	(1) Year End Book	(2) Retention Rate	(3) Dividend	(4) Earnings Per Share	(5) Retained Earnings Per Share	(6) External Financin Rate	(7) Incremer to book from Ext. Fin.	(8) Total Increment to Book	(9) Market Price	(10) Mkt to Book	(11) Expect. Ret. on Equity	(12) Cash Fl. from Stock Trans.	(13) Cash Fl. from Div.	(14) Total Cash Flow	
	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]	
First Stage	2002	\$11.68	50.15%	\$1.13	\$2.27	\$1.14			M/B Change	0.00%					
	2003	\$12.93	52.93%	\$1.18	\$2.50	\$1.32			\$37.70	3.23		(\$37.70)		(\$37.70)	
	2004	\$14.46	56.78%	\$1.21	\$2.80	\$1.59		\$1.32	\$41.73	3.23	20.31%		\$1.18	\$1.18	
	2005	\$15.99	59.89%	\$1.24	\$3.10	\$1.86		\$1.59	\$46.66	3.23	20.44%		\$1.21	\$1.21	
	2006	\$17.52	58.82%	\$1.28	\$3.10	\$1.82		\$1.86	\$51.59	3.23	20.36%		\$1.24	\$1.24	
								\$1.82	\$56.52	3.23	18.50%		\$1.28	\$1.28	
Second Stage	2007	\$18.58	36.84%	\$1.82	\$2.89	\$1.06	0.00%	\$0.00	\$1.06	\$59.95	3.23	16.00%		\$1.82	\$1.82
	2008	\$19.71	36.84%	\$1.93	\$3.06	\$1.13	0.00%	\$0.00	\$1.13	\$63.59	3.23	16.00%		\$1.93	\$1.93
	2009	\$20.91	36.84%	\$2.05	\$3.25	\$1.20	0.00%	\$0.00	\$1.20	\$67.46	3.23	16.00%		\$2.05	\$2.05
	2010	\$22.18	36.84%	\$2.18	\$3.45	\$1.27	0.00%	\$0.00	\$1.27	\$71.55	3.23	16.00%		\$2.18	\$2.18
	2011	\$23.52	36.84%	\$2.31	\$3.66	\$1.35	0.00%	\$0.00	\$1.35	\$75.90	3.23	16.00%		\$2.31	\$2.31
	2012	\$24.95	36.84%	\$2.45	\$3.88	\$1.43	0.00%	\$0.00	\$1.43	\$80.51	3.23	16.00%		\$2.45	\$2.45
	2013	\$26.47	36.84%	\$2.60	\$4.11	\$1.52	0.00%	\$0.00	\$1.52	\$85.40	3.23	16.00%		\$2.60	\$2.60
	2014	\$28.07	36.84%	\$2.76	\$4.36	\$1.61	0.00%	\$0.00	\$1.61	\$90.58	3.23	16.00%		\$2.76	\$2.76
	2015	\$29.78	36.84%	\$2.92	\$4.63	\$1.71	0.00%	\$0.00	\$1.71	\$96.09	3.23	16.00%		\$2.92	\$2.92
	2016	\$31.59	36.84%	\$3.10	\$4.91	\$1.81	0.00%	\$0.00	\$1.81	\$101.92	3.23	16.00%		\$3.10	\$3.10
	2017	\$33.51	36.84%	\$3.29	\$5.21	\$1.92	0.00%	\$0.00	\$1.92	\$108.11	3.23	16.00%		\$3.29	\$3.29
	2018	\$35.54	36.84%	\$3.49	\$5.52	\$2.03	0.00%	\$0.00	\$2.03	\$114.68	3.23	16.00%		\$3.49	\$3.49
	2019	\$37.70	36.84%	\$3.70	\$5.86	\$2.16	0.00%	\$0.00	\$2.16	\$121.64	3.23	16.00%		\$3.70	\$3.70
	2020	\$39.99	36.84%	\$3.93	\$6.22	\$2.29	0.00%	\$0.00	\$2.29	\$129.03	3.23	16.00%		\$3.93	\$3.93
	2021	\$42.42	36.84%	\$4.16	\$6.59	\$2.43	0.00%	\$0.00	\$2.43	\$136.87	3.23	16.00%		\$4.16	\$4.16
	2022	\$44.99	36.84%	\$4.42	\$6.99	\$2.58	0.00%	\$0.00	\$2.58	\$145.18	3.23	16.00%		\$4.42	\$4.42
	2023	\$47.73	36.84%	\$4.69	\$7.42	\$2.73	0.00%	\$0.00	\$2.73	\$154.00	3.23	16.00%		\$4.69	\$4.69
	2024	\$50.63	36.84%	\$4.97	\$7.87	\$2.90	0.00%	\$0.00	\$2.90	\$163.35	3.23	16.00%		\$4.97	\$4.97
	2025	\$53.70	36.84%	\$5.27	\$8.35	\$3.07	0.00%	\$0.00	\$3.07	\$173.27	3.23	16.00%		\$5.27	\$5.27
	2026	\$56.96	36.84%	\$5.59	\$8.85	\$3.26	0.00%	\$0.00	\$3.26	\$183.79	3.23	16.00%		\$5.59	\$5.59
	2027	\$60.42	36.84%	\$5.93	\$9.39	\$3.46	0.00%	\$0.00	\$3.46	\$194.96	3.23	16.00%		\$5.93	\$5.93
	2028	\$64.09	36.84%	\$6.29	\$9.96	\$3.67	0.00%	\$0.00	\$3.67	\$206.80	3.23	16.00%		\$6.29	\$6.29
	2029	\$67.98	36.84%	\$6.67	\$10.57	\$3.89	0.00%	\$0.00	\$3.89	\$219.36	3.23	16.00%		\$6.67	\$6.67
	2030	\$72.11	36.84%	\$7.08	\$11.21	\$4.13	0.00%	\$0.00	\$4.13	\$232.68	3.23	16.00%		\$7.08	\$7.08
	2031	\$76.49	36.84%	\$7.51	\$11.89	\$4.38	0.00%	\$0.00	\$4.38	\$246.81	3.23	16.00%		\$7.51	\$7.51
	2032	\$81.14	36.84%	\$7.96	\$12.61	\$4.65	0.00%	\$0.00	\$4.65	\$261.80	3.23	16.00%		\$7.96	\$7.96
	2033	\$86.07	36.84%	\$8.45	\$13.38	\$4.93	0.00%	\$0.00	\$4.93	\$277.70	3.23	16.00%		\$8.45	\$8.45
	2034	\$91.29	36.84%	\$8.96	\$14.19	\$5.23	0.00%	\$0.00	\$5.23	\$294.57	3.23	16.00%		\$8.96	\$8.96
	2035	\$96.84	36.84%	\$9.51	\$15.05	\$5.54	0.00%	\$0.00	\$5.54	\$312.46	3.23	16.00%		\$9.51	\$9.51
	2036	\$102.72	36.84%	\$10.08	\$15.96	\$5.88	0.00%	\$0.00	\$5.88	\$331.43	3.23	16.00%		\$10.08	\$10.08
	2037	\$108.96	36.84%	\$10.70	\$16.93	\$6.24	0.00%	\$0.00	\$6.24	\$351.56	3.23	16.00%		\$10.70	\$10.70
	2038	\$115.58	36.84%	\$11.35	\$17.96	\$6.62	0.00%	\$0.00	\$6.62	\$372.92	3.23	16.00%		\$11.35	\$11.35
	2039	\$122.59	36.84%	\$12.03	\$19.05	\$7.02	0.00%	\$0.00	\$7.02	\$395.56	3.23	16.00%		\$12.03	\$12.03
	2040	\$130.04	36.84%	\$12.77	\$20.21	\$7.45	0.00%	\$0.00	\$7.45	\$419.59	3.23	16.00%		\$12.77	\$12.77
	2041	\$137.94	36.84%	\$13.54	\$21.44	\$7.90	0.00%	\$0.00	\$7.90	\$445.07	3.23	16.00%		\$13.54	\$13.54
	2042	\$146.32	36.84%	\$14.36	\$22.74	\$8.38	0.00%	\$0.00	\$8.38	\$472.10	3.23	16.00%	\$472.10	\$14.36	\$486.47
Source												Internal Rate of Return		9.97%	

Source:

- [A] First Stage is average from Value Line. Second stage is prior years' book plus value from Col [8]  
 [B] First Stage is (Col. [4]-Col [3])/Col [4]. For second stage, see result on Schedule 5, Page 1  
 [C] First Stage is from Value Line. Second stage is Col. [4] x (1-Col. [2])  
 [D] First Stage is from Value Line. Second stage is average of current and prior year's value from Col. [1] x Col. [11]  
 [E] Col. [4] - Col. [3] [J] JAR Exhibit 3  
 [F] Schedule 8 [K] First stage is Col. [4]/Avg. of Current and prior year's Col. [1]. Second stage is from JAR Exhibit 3  
 [G] Col. [5] + Col. [7] [L] - Col. [9] for year of purchase, + Col. [9] for year of sale.  
 [H] Col. [7] + Col. [8] [M] Col. [3]  
 [I] Col. [1] x Col. [10] [N] Col. [12] + Col. [13]

**RBOCS**  
**VALUE LINE'S EARNINGS PROJECTIONS**

**JAR Exhibit 3**  
**Schedule 6, Page 3**

**Earnings Per Share Forecast by Value Line**

	2002	2003	2004	2005	2006
Bell South	\$1.45	\$2.00	\$2.38	\$2.75	\$2.75
SBC Communications	\$2.30	\$2.40	\$2.63	\$2.85	\$2.85
Verizon	\$3.05	\$3.10	\$3.40	\$3.70	\$3.70
	\$2.27	\$2.50	\$2.80	\$3.10	\$3.10

Source: Most Current Value Line at Time of Prep: 2002 and 2003.

The value for 2005 & 2006 is simply the number from value line's 2005-2007 range.

Values for 2004 were interpolated from the 2003 and the 2005-2007 range



**JAR Exhibit 3**  
**Schedule 6, Page 4**  
**RBOCS**  
**VALUE LINE'S BOOK VALUE PROJECTIONS**

**Book Value Per Share Forecast by Value Line**

	2002	2003	2004	2005	2006
Bell South	\$10.90	\$12.10	\$13.62	\$15.13	\$16.65
SBC Communications	\$10.50	\$11.35	\$12.47	\$13.68	\$14.70
Verizon	\$13.65	\$15.35	\$17.30	\$19.25	\$21.20
AVERAGE	\$11.68	\$12.93	\$14.46	\$15.99	\$17.52

Source: Most Current Value Line at Time of Prep: 2002 and 2003

The value for 2005 & 2006 is simply the number from value line's 2005-2007 range.

Values for 2004 were interpolated from the 2003 and the 2005-2007 range

**COMPARATIVE ELECTRIC COMPANIES**  
**Value Line's Projection of Dividends Per Share**

**JAR Exhibit 3**  
**Schedule 6, Page 5**  
 Compound Annual  
 Growth from 2000  
 to 2006

	2002	2003	2004	2005	2006	
<b>AMOUNT:</b>			Value Line Estimate			
Bell South	\$0.78	\$0.82	\$0.86	\$0.90	\$0.94	3.80%
SBC Communications	\$1.07	\$1.11	\$1.15	\$1.19	\$1.23	2.83%
Verizon	\$1.54	\$1.60	\$1.62	\$1.64	\$1.66	1.51%
Average	\$1.13	\$1.18	\$1.21	\$1.24	\$1.28	2.71%
		4.13%	2.83%	2.75%	2.68%	

Source: Most Current Value Line at Time of Prep: 2002 and 2003.

The value for 2005 & 2006 is simply the number from value line's 2005-2007 range.

Values for 2004 were interpolated from the 2003 and the 2005-2007 range

	2003	2004	2005	2006
<b>PERCENT CHANGE FROM PRIOR YEAR:</b>				
Bell South	5.13%	4.88%	4.65%	4.44%
SBC Communications	3.74%	3.60%	3.48%	3.36%
Verizon	3.90%	1.25%	1.23%	1.22%
<b>AVERAGE</b>	4.25%	3.24%	3.12%	3.01%

Source: Value Line

**JAR Exhibit 3  
Schedule 7**

**RBOCS  
OVERALL CAPITAL STRUCTURE  
6/30/2002**

	BellSouth	SBC	Verizon
Amount			
Total Debt	20,125	25,799	61,608
Total Preferred Stock	0	0	0
Total Common Stock	<u>18,597</u> <u>38,722</u>	<u>31,728</u> <u>57,527</u>	<u>28,642</u> <u>90,250</u>
Percent			
Debt	52.0%	44.8%	68.3%
Preferred Equity	0.0%	0.0%	0.0%
Common Equity	<u>48.0%</u> <u>100.0%</u>	<u>55.2%</u> <u>100.0%</u>	<u>31.7%</u> <u>100.0%</u>
			Average
			45.0%

Source: 2000 10K reports to U.S. Securities and Exchange Commission  
as obtained from the SEC Edgar website: [sec.edgar.gov](http://sec.edgar.gov)

**COMPARATIVE COMPANIES  
EXTERNAL FINANCING RATE**  
(Millions of Shares)

	Common Stock Outstanding 2001	2005-07	Compound Annual
RBOC			
Bellsouth	1873.30	1830.00	-0.47%
SBC	3354.20	3340.00	-0.08%
Verizon	2712.20	2690.00	-0.16%
		Average	-0.24%
		Median	-0.16%
		Round to	0.00%

	2001	2005-07	
ELECTRIC COMPANIES SELECTED BY PACIFICORP			
Ameren	138.05	144.20	0.88%
Progress Energy (CP&L+Florida Progress)	218.73	224.60	0.53%
Cleco Corporation	44.96	47.00	0.89%
Con Edison	212.15	219.60	0.69%
DPL Inc.	119.10	119.00	-0.02%
DQE Inc.	55.91	76.50	6.47%
DTE Energy Co.	161.13	170.00	1.08%
Energy East (NYSEG, CMP, CT Natural and	116.72	146.00	4.58%
FPL Group, Inc.	175.85	182.20	0.71%
Idacorp, Inc.	37.63	39.00	0.72%
IPALCO Enterprises			
Nstar (Boston Edison)	53.03	49.00	-1.57%
Pinnacle West	84.83	84.90	0.02%
Potomac Electric Power	107.22	105.00	-0.42%
Puget Energy, Inc.	87.02	93.25	1.39%
UIL Holdings	14.12	15.00	1.22%
	108.43	114.35	
		Average	1.14%
		Median	0.72%
		Round to	1.00%

**GAS COMPANIES**

Cascade Natural Gas	11.05	12.00	1.66%
Nicor	44.40	43.00	-0.64%
N.W. Natural Gas	25.23	25.50	0.21%
Peoples Energy	35.40	32.00	-2.00%
Piedmont Natural Gas	32.46	35.00	1.52%
South Jersey Industries	11.86	13.50	2.62%
Southwest Gas	32.49	33.00	0.31%
WGL Holdings	48.54	48.50	-0.02%
	30.18	30.31	
	Average		0.46%
	Median		0.26%
	Round to		0.50%

**WATER COMPANIES**

American States Water Co.	15.12	16.80	2.67%
American Water Works	100.01	104.00	0.98%
California Water Service	15.18	19.00	5.77%
Philadelphia Suburban	68.39	72.00	1.29%
	49.68	52.95	
	Average		2.68%
	Median		1.98%
	Round to		2.00%

Source:

Value Line

Note: Shares outstanding forecasts are from most current Value Line issues reports. This was necessary because the Value Line report for the Eastern electric utilities is the only one that provided forecasting updates that carry forecasts through 2004-2006. Updating only the Eastern electric companies would have resulted in a data incompatibility.

**COST OF EQUITY INDICATED BY  
INFLATION RISK PREMIUM METHOD**

1	Interest rate on 30 year treasury bonds	4.69% [A]	
2	Interest rate on inflation indexed 30 year treasury bonds	Apr-32 2.62% [B]	
3	Difference	2.07% Line 1 minus Line 2	
4	Round to	<u>2.10%</u>	
5	Historic Return on Common Stocks Net of Inflation	6.60% to 7.20% [C]	
6	Inflation expectation	<u>2.10%</u>	<u>2.10% Line 4</u>
7	Inflation Risk Premium Indicated Cost of Equity for Company of Average Risk	<u>8.70%</u> to <u>9.30%</u>	
<b>RISK ADJUSTMENT</b>			
8	Yield on 90 day treasury bills	1.62% [A]	
9	Equity premium over 90 day treasury bills	4.98%	5.58% Line 5 minus line 8
10	Beta of RBOC	0.85	Schedule 4, Page 3
11	Risk adjusted equity premium	<u>4.23%</u>	<u>4.74% Line 9 times Line 10</u>
12	Reduction in equity premium applicable to electric companies	<u>0.75%</u>	<u>0.84% Line 9 minus line 11</u>
13	Risk premium applicable to telephone companies Mid-point	<u>7.95%</u>	<u>8.46% Line 7 minus line 12</u>
		<u>8.21%</u>	

Sources:

[A] Bondsonline.com, 8/27/02

[B] New York Times, Friday, September 27, 2002

[C] Page 12 of Stocks for the Long Run, Second Edition by Jeremy J. Siegel, 1998, McGraw Hill.

JAR Exhibit 3  
Schedule 10, Page 1

RISK PREMIUM/CAPM METHOD COST OF EC EQUITY FOR COMMON STOCK :				
	Average Risk	Risk Premium Adjustment	Applicable to RBOC Beta of 0.92 [A]	
<i>Based on Long-term Treasury Bonds</i>				
Interest rate on 20 year treasury bonds	4.78% [B]		4.78%	
Applicable Risk Premium	4.00% [C]	-0.33% [E]	3.67%	
	<u>8.78%</u>		<u>8.45%</u>	
<i>Based on Corporate Bonds</i>				
Interest on corporate bonds	4.78% [D]		4.78%	
Applicable Risk Premium	3.51% [C]	-0.29% [E]	3.22%	
	<u>8.29%</u>		<u>8.00%</u>	
<i>Based on Intermediate Term U.S Treasury Bonds</i>				
Interest on 10 year U.S. Treasury Bonds	3.69% [B]		3.69%	
Applicable Risk Premium	3.90% [C]	-0.32% [E]	3.57%	
	<u>7.59%</u>		<u>7.28%</u>	
<i>Based on U.S. Treasury Bills</i>				
Interest on 90 day U.S. Treasury Bills	1.62% [B]		1.62%	
Applicable Risk Premium	5.33% [C]	-0.44% [E]	4.89%	
	<u>6.95%</u>		<u>6.51%</u>	

SUMMARY OF INDICATED RISK PREMIUM FOR EQUITY WITH AVERAGE RISK

Lowest	6.95%
Highest	8.78%
Average	<u>7.90%</u>

	6.51%
	8.45%
	<u>7.55%</u>

Sources:

[A]	Schedule 4, Page 3	[E]	Number in 1st column x (1-beta)	
[B]	Bondsonline.com U.S. Treasuries, 20 yr		Average of	and
	9/27/2002		from	
[C]	Schedule JAR 10, Page 2		Schedule 9	5.58%
[D]	BondsOnline, 9/27/02			
	AAA, rated 20 year corporate bond			

RISK PREMIUM BASED UPON ANALYSIS OF  
HISTORIC RETURNS

Compound annual returns from 1926 through 1999:

Large Common Stocks	11.35%
Corporate Bonds	5.61%
Long-term U.S. Treasury Bonds	5.12%
Intermediate Term U.S. Treasury Bonds	5.22%
U.S. Treasury Bills	3.79%
Inflation	3.07%

Average difference from Long-term U.S. Treasury Bonds:

Large Common Stocks	6.23%
Corporate Bonds	0.49%
Long-term U.S. Treasury Bonds	0.00%
Intermediate Term U.S. Treasury Bonds	0.10%
U.S. Treasury Bills	-1.33%
Inflation	-2.05%

Common Stock Risk Premium Consistent With Current Market Environment:

Long-term U.S. Treasury Bonds	4.00% or less.
Corporate Bonds	3.51% or less.
Intermediate Term U.S. Treasury Bonds	3.90% or less.
U.S. Treasury Bills	5.33% or less.
Inflation	6.05% or less.

See graph on Schedule JAR 11, P. 3.  
Risk premium on large common stocks minus average difference from corporate bonds per above table.  
Risk premium on large common stocks minus average difference from corporate bonds per above table.  
Risk premium on large common stocks minus average difference from corporate bonds per above table.  
Risk premium on large common stocks minus average difference from corporate bonds per above table.

## **JAR Exhibit 4**

### **Verizon Communications Balance Sheet**




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### Verizon Communications Quarterly Balance Sheet

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ADVER

Who

Period Ending	Jun 30, 2002	Mar 31, 2002	Dec 31, 2001	Sep 30, 2001
<b>Current Assets</b>				
Cash And Cash Equivalents	\$2,962,000,000	\$1,015,000,000	\$979,000,000	\$1,365,000,000
Short Term Investments	\$769,000,000	\$1,364,000,000	\$1,991,000,000	\$248,000,000
Net Receivables	\$13,068,000,000	\$15,412,000,000	\$14,254,000,000	\$13,726,000,000
Inventory	\$3,166,000,000	\$3,002,000,000	\$3,167,000,000	\$3,746,000,000
Other Current Assets	\$3,176,000,000	\$3,379,000,000	\$2,796,000,000	\$2,747,000,000
<b>Total Current Assets</b>	<b>\$23,141,000,000</b>	<b>\$24,172,000,000</b>	<b>\$23,187,000,000</b>	<b>\$21,832,000,000</b>
<b>Long Term Assets</b>				
Long Term Investments	\$5,881,000,000	\$7,615,000,000	\$10,202,000,000	\$11,284,000,000
Property Plant And Equipment	\$74,384,000,000	\$74,321,000,000	\$74,419,000,000	\$72,897,000,000
Goodwill	N/A	N/A	N/A	N/A
Intangible Assets	\$45,231,000,000	\$45,127,000,000	\$44,262,000,000	\$44,080,000,000
Accumulated Amortization	N/A	N/A	N/A	N/A
Other Assets	\$19,656,000,000	\$20,090,000,000	\$18,725,000,000	\$19,410,000,000
Deferred Long Term Asset Charges	N/A	N/A	N/A	N/A
<b>Total Assets</b>	<b>\$168,293,000,000</b>	<b>\$171,325,000,000</b>	<b>\$170,795,000,000</b>	<b>\$169,503,000,000</b>

YAB

## Current Liabilities

Accounts Payable	\$13,130,000,000	\$13,120,000,000	\$13,947,000,000	\$11,945,000,000
Short Term And Current Long Term Debt	\$16,969,000,000	\$16,344,000,000	\$18,669,000,000	\$18,847,000,000
Other Current Liabilities	\$5,581,000,000	\$5,646,000,000	\$5,404,000,000	\$5,450,000,000
Total Current Liabilities	\$35,680,000,000	\$35,110,000,000	\$38,020,000,000	\$36,242,000,000
Long Term Debt	\$44,639,000,000	\$46,580,000,000	\$45,657,000,000	\$45,043,000,000
Other Liabilities	\$17,684,000,000	\$17,727,000,000	\$15,887,000,000	\$15,354,000,000
Deferred Long Term Liability Charges	\$18,824,000,000	\$18,375,000,000	\$16,543,000,000	\$16,129,000,000
Minority Interest	\$22,824,000,000	\$22,526,000,000	\$22,149,000,000	\$21,899,000,000
Negative Goodwill	N/A	N/A	N/A	N/A
<b>Total Liabilities</b>	<b>\$139,651,000,000</b>	<b>\$140,318,000,000</b>	<b>\$138,256,000,000</b>	<b>\$134,667,000,000</b>

## Stock Holders Equity

Misc Stocks Options Warrants	N/A	N/A	N/A	N/A
Redeemable Preferred Stock	N/A	N/A	N/A	N/A
Preferred Stock	N/A	N/A	N/A	N/A
Common Stock	\$275,000,000	\$275,000,000	\$275,000,000	\$275,000,000
Retained Earnings	\$5,842,000,000	\$9,065,000,000	\$10,704,000,000	\$13,968,000,000
Treasury Stock	(\$606,000,000)	(\$867,000,000)	(\$1,182,000,000)	(\$1,277,000,000)
Capital Surplus	\$24,713,000,000	\$24,685,000,000	\$24,676,000,000	\$24,505,000,000
Other Stockholder Equity	(\$1,582,000,000)	(\$2,151,000,000)	(\$1,934,000,000)	(\$2,635,000,000)

<b>Total Stockholder Equity</b>	<b>\$28,642,000,000</b>	<b>\$31,007,000,000</b>	<b>\$32,539,000,000</b>	<b>\$34,836,000,000</b>
<b>Net Tangible Assets</b>	<b>(\$16,589,000,000)</b>	<b>(\$14,120,000,000)</b>	<b>(\$11,723,000,000)</b>	<b>(\$9,244,000,000)</b>

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## **JAR Exhibit 5**

### **Value Line Report on Qwest Communications.**

# QWEST COMMUN INTL NYSE-Q

RECENT PRICE

2.52

P/E RATIO NMF (Trailing: NMF)  
Median: NMF

RELATIVE P/E RATIO NMF

DIVID YLD

Nil

VALUE LINE

735

TIMELINESS - 0

SAFETY 5 Lowered 7/5/02

TECHNICAL - 0

BETA 1.60 (1.00 = Market)

2005-07 PROJECTIONS

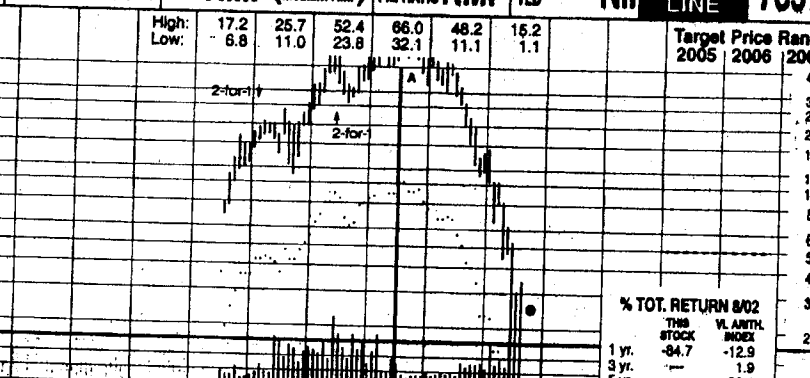
High Price 5 (+100%) 19%  
Low Price 3 (+20%) 5%

Insider Decisions

Institutional Decisions

to Buy 245 207 153  
to Sell 419 416 309  
Net (000) 810229 938235 957950

LEGENDS  
Relative Price Strength  
2-for-1 split 2/96  
2-for-1 split 5/99  
Options: Yes  
Shaded area indicates recession



Qwest Communications International, Inc. was founded in 1988. It was wholly-owned by Anshutz Company until June 27, 1997, when the company issued common stock in an initial public offering. 27 million shares were offered at \$11 (adjusted for a subsequent stock split). Anshutz retained ownership of 83.7% of the company. The lead underwriter was Salomon Brothers.

CAPITAL STRUCTURE as of 6/30/02

Total Debt \$25264 mil. Due in 5 Yrs \$10300 mil.  
LT Debt \$20370 mil. LT Interest \$1490 mil.  
Incl. \$155 mil. capitalized leases.  
(Interest not earned)

Leases, Uncapitalized Annual rentals \$339 mil.

Pension Liability None  
FD Stock None

Common Stock Approx. 1,676,700,020 shs.  
(63% of Cap'l)

(Options Exercisable 6.2%)

MARKET CAP: \$4.3 billion (Large Cap)

CURRENT POSITION 2000 2001 6/30/02

Cash Assets 154.0 257.0 699  
Receivables 4235.0 4502.0 3825  
Other 987.0 998.0 1309  
Current Assets 5376.0 5757.0 5833  
Accts Payable 2049.0 1529.0 1290  
Debt Due 3645.0 4806.0 5894  
Other 4199.0 3654.0 2955  
Current Liab. 9893.0 9989.0 10139

ANNUAL RATES Past 5 Yrs. Past 5 Yrs. to '01

of change (per sh) 10 Yrs. 5 Yrs. to '01  
Sales -- 68.5% 4.5%  
"Cash Flow" -- 135.5% 6.5%  
Earnings -- -- NMF  
Dividends -- -- NMF  
Book Value -- 269.0% NMF

QUARTERLY SALES (\$ mil.) A

Cal-ender Mar.31 Jun.30 Sep.30 Dec.31 Full Year  
1999 878.4 874.2 1018 1157 3927.6  
2000 837.7 345.0 4765 5018 16610  
2001 505.1 522.2 4766 4858 19695  
2002 4369 4316 4240 4000 16925  
2003 4050 4100 3850 3800 15900

EARNINGS PER SHARE AB

Cal-ender Mar.31 Jun.30 Sep.30 Dec.31 Full Year  
1999 .01 .02 .03 .04 .10  
2000 .32 .10 .19 .09 .06  
2001 .13 .08 .08 .07 .05  
2002 .10 .13 .14 .13 .50  
2003 .13 .15 .17 .15 .60

QUARTERLY DIVIDENDS PAID

Cal-ender Mar.31 Jun.30 Sep.30 Dec.31 Full Year  
1999 -- -- -- -- --  
2000 .43 -- -- -- .43  
2001 -- .05 -- -- .05  
2002 -- -- -- -- --  
2003 -- -- -- -- --

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Q VALUE LINE PUB. INC.	05-07
					.67	1.69	3.23	5.24	9.93	11.84	10.10	8.50	Sales per sh <sup>A</sup>	11.60
					.03	.08	.26	.64	1.95	3.25	2.05	2.15	"Cash Flow" per sh	3.20
					d.02	.04	d.04	.10	d.06	.05	d.50	d.60	Earnings per sh <sup>AB</sup>	.25
									.43	.05	Nil	Nil	Div'ds Decl'd per sh <sup>D</sup>	Nil
					.17	.84	2.04	2.53	3.95	5.14	1.60	1.65	Cap'l Spending per sh	1.80
					.03	.92	6.11	9.34	24.70	22.03	8.20	7.60	Book Value per sh <sup>F</sup>	7.55
					346.00	413.34	694.00	750.00	1672.2	1663.5	1677.0	1678.0	Common Shs Outst'g <sup>E</sup>	1681.0
						NMF		NMF		NMF	Sold Agrees are Value Line estimates		Avg Ann'l P/E Ratio	15.0
						NMF		NMF		NMF			Relative P/E Ratio	1.00
									.9%	.2%			Avg Ann'l Div'd Yield	Nil
					231.0	696.7	2242.7	3927.6	16610	19695	16625	15900	Sales (\$mil) <sup>A</sup>	19500
					7.5%	18.8%	13.1%	17.3%	41.6%	37.3%	31.5%	33.5%	Operating Margin	35.0%
					16.2	20.3	201.7	404.1	3342.0	5335.0	4300	4650	Depreciation (\$mil)	4650
					d7.0	14.5	d18.4	72.8	d81.0	78.0	d890	d1015	Net Profit (\$mil)	180
						38.4%		40.0%	NMF	NMF	NMF	NMF	Income Tax Rate	40.0%
					NMF	2.1%	NMF	1.8%	NMF	4%	NMF	NMF	Net Profit Margin	2.0%
					d75.7	408.5	201.6	546.8	d4517	d4232	d1500	2000	Working Cap'l (\$mil)	2200
					109.3	630.5	2307.1	2368.3	15421	20197	20375	18875	Long-Term Debt (\$mil)	13375
					9.4	381.7	4238.2	7001.3	41304	36655	13800	12800	Shr. Equity (\$mil)	12700
					NMF	2.4%	.7%	1.6%	.8%	1.2%	NMF	NMF	Return on Total Cap'l	4.0%
					NMF	3.8%	NMF	1.0%	NMF	2%	NMF	NMF	Return on Shr. Equity	3.0%
					NMF	3.8%	NMF	1.0%	NMF	NMF	NMF	NMF	Retained to Com Eq	3.0%
									NMF	106%	Nil	Nil	All Div'ds to Net Prof	Nil

BUSINESS: Qwest Communications International, Inc. is a developer and operator of telecommunications networks and facilities. It provides dedicated line and switched services to inter exchange carriers and competitive access providers, and long distance voice, data and video services to businesses and consumers. Also constructs and installs fiber-optic communications systems for inter ex-

change carriers and other communications entities, as well as for its own use. Acquired US West (8/00), LCI Int'l (3/98), Ioon CMT Group (12/98). Off. & dir. own 19.0% of common; Philip Anshutz, 18.1% (4/02 proxy). Chairman & CEO: Dick Notebaert, Inc.: DE. Address: 1801 California Street, Denver, CO 80202. Telephone: (303) 982-5109. Internet: www.qwest.com.

**Qwest Communications has improved its liquidity.** It recently announced a two-stage \$7.05 billion sale of its Directory business, with the eastern half (\$2.75 billion) due to be sold later this year, and the western half (\$4.3 billion) slated for the second half of next year. In conjunction with this sale, the company renegotiated its \$3.4 billion credit facility, likely avoiding a third-quarter covenant violation. Under the terms of the new credit agreement, Qwest will pay down its bank facility to \$2.0 billion, using cash received from the first tranche of the directory sale, and \$1.25 billion upon receipt of the second tranche. The company will then have until 2005 to pay the balance—two years longer than under the old credit facility. The bottom line will likely remain in the red through 2003. Qwest's communications businesses continue to remain sluggish as growth in data and Internet services are being offset by declines in local and long-distance services. Moreover, we believe that the company's long-distance revenues will soon come under additional pressure, as RBOCs begin to offer services within Qwest's long-distance

region. Lastly, the sale of the Directory business will remove roughly \$1.6 billion from the yearly revenue stream. As such, we are reducing our 2002 and 2003 share-net estimates by \$0.30 and \$0.60, respectively, to losses of \$0.50 and \$0.60. The company announced that it will reverse \$950 million in revenues related to exchanges of optical capacity assets in 2000 and 2001. It still remains unclear, however, whether the restatement will hasten the company's ability to reach a settlement with the SEC, which has been investigating the company regarding its accounting irregularities. We do not recommend these shares at this time. Although the company has sidestepped near-term liquidity concerns, it still has to contend with heavy debt, shrinking revenues, and an ongoing criminal investigation by the SEC.

Stuart Plesser October 4, 2002

CASH POSITION	8-Year Avg	6/30/02
Current Assets to Current Liabilities:	120%	56%
Cash & Equiv's to Current Liabilities:	38%	7%
Working Capital to Sales:	7%	NMF

(A) Fiscal 2000 results do not include US West for the first six months of the year.  
(B) Diluted earnings. Excludes nonrecurring gains/losses: '97, (\$3.58); '98, (\$2.95); '99, (\$2.95).  
(C) 2002 Value Line Publishing, Inc. All rights reserved. Factual material is obtained from sources believed to be reliable and is provided without warranties of any kind.  
(D) Dividend suspended after 6/25/01 payment.  
(E) In mil., adj. for stock splits.  
(F) Includes intangibles. In 2001, \$29.7 bil., \$17.86/share.  
(G) Unranked due to merger with U.S. West on June 30, 2000.  
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## **JAR Exhibit 6**

**Value Line discussion of arithmetic  
and geometric average.**

## The Differences in Averaging

One of the frequent questions we receive is related to the proper procedure to calculate the average return of an investment (stock, mutual fund, or anything else). This article will briefly examine how to compute the average change of a specific investment 1) over a set period of time, 2) over a number of years, and 3) annualizing returns over a period shorter than a year.

### Averaging Calculations

There are actually three averaging methods: arithmetic, geometric, and harmonic. These formulas are shown below:

$$\text{Arithmetic: } (y_1 + y_2 + \dots + y_n) / n$$

$$\text{Geometric: } (((1+y_1) * (1+y_2) * \dots * (1+y_n)) - 1)^{1/n}$$

$$\text{Harmonic: } (1 / ((1/n) * ((1+y_1) + (1+y_2) + \dots + (1+y_n)))) - 1$$

In each case  $n$  is the number of years of data and each  $y$  is the ending price divided by the beginning price minus 1. Stated simply, the geometric mean is the  $n^{\text{th}}$  root of the product of the individual averages. Since there are often negative returns involved in this sort of calculation, one is added to each term. At the end, the one is subtracted to get back to the decimal fraction number.

The arithmetic average has an upward bias, though it is the simplest to calculate. The geometric average does not have any bias, and thus is best to use when compounding (over a number of years) is involved. Lastly, the harmonic average has a downward bias.

But since it is rarely used, we will focus on the arithmetic and geometric averages in the following discussion.

### Over a Set Period of Time

The simplest way to compute the price change is to take the ending price and divide it into the beginning price. After subtracting one from the result, you are left with the holding period yield. This calculation produces the decimal fraction equivalent of the percentage change. A change in price from 4 to 5, would be computed as  $(5 \div 4) - 1$ , which yields .25, or 25%.

The holding period return is independent of time. That means that it can be

These figures are shown in the table below:

Year	Price	% Price Change
0	\$10	—
1	20	100%
2	10	-50%

Price change from year 0 to year 2: 0%

Arithmetic Average: 25%

Geometric Average: 0%

One of the more interesting observations that arises from such an example is the asymmetric nature of the returns. Notice that in this example, the stock only has to fall half as much in year two as it rose in year one to completely wipe out any paper gains the investor had during the interim. This nature highlights the importance of using the geometric return. As shown, the arithmetic average indicates that the stock had an average annual return of 25% over the past two years. However, the true return, which is corroborated by the geometric mean, is zero.

computed on an annual basis, over a ten-year period, or any other time frame.

### Compounding: Averages Over a Number of Years

Now assume we have been watching a stock for two years, and we want to compute the annual return for each year, and the average annual return for the two-year period. Let's say this stock was initially priced at \$10, rose to \$20 by the end of year 1, but fell back down to \$10 by the end of year two. From the above-mentioned example, we know how to find the price change for the first and second year. Then we can also find the total price change over the two year period.

Another interesting point is that the asymmetry magnifies as the price changes increase in size. For example, let's say the stock price increased to \$50 before falling back to \$10.

Year	Price	% Price Change
0	\$10	—
1	50	400%
2	10	-80%

Price change from year 0 to year 2: 0%

Arithmetic Average: 160%

Geometric Average: 0%

Originally, the stock had to fall 50% to wipe a 100% gain. But in the second scenario, the stock had to drop only 80% to wipe out a phenomenal 400% gain. This growing discrepancy between the different averaging techniques highlights the importance of accurately measuring and portraying investment results. Again we see that the geometric average portrays the true return accurately.

#### Annualizing Returns

An annualized holding period return figure can be computed by taking the

$1/n^{\text{th}}$  root of the holding period return, where  $n$  is the length of the sub-period relative to the year. (For a three-month period,  $n$  would equal .25, or one-fourth of the year. For a two-year period,  $n$  would equal 2.) Below are two examples that show how this operation is performed.

Let's say you wanted to figure out the annualized return of a stock that rose 5% in the first quarter. The annualized return would then be computed as  $(1.05)^{1/.25}$ , or 21.6%.

We can also compute an average annualized return figure from a period longer than a year. For example, if the stock rose 20% for two straight years, the cumulative growth rate would be 44% ( $1.20 * 1.20$ ). This figure could be dissected into the average annual rate using the same formula shown above  $(1.44)^{1/2}$ , which we can verify as 1.20, or 20%.

**Roger J. Bos**  
Analyst

## Timely Income Stocks

For equity investors with more of an eye for current income, we've screened our database for issues that combine high estimated dividend yields and above-average relative year-ahead performance potential, without undue investment risk.

This roster includes only those equities whose dividend yields are at least 2.7%, which is 70 basis points above the 2.0% median for all stocks in Value Line's universe. Ranks here must be no less than 2 (Above Average) for Timeliness and no less than 3 (Average) for Safety.

Although the focus here is on current income and near-term price performance, we shape our criteria to ensure solid potential returns for longer-term investors as well. Accordingly, we require a minimum projected three- to five-year total return potential of 15%, compared with the median of 14.6% for all stocks under our review. In addition, our analyst's projection for capital appreciation had to be at least 55%, which is in line with the current median price appreciation potential for all stocks in the Value Line universe.

Given the relatively stringent criteria applied here, this is a fairly short list which encompasses stocks from a fairly diverse group of industries. This list would seem to be a good starting point for income-minded investors with both short- and long-term investment perspectives. As always, though, we urge investors to consult the individual and supplementary analyses in *Ratings & Reports* before committing to any of the issues listed in the table below.

<i>Ratings &amp; Reports</i> Page	Ticker	Company Name	Div'd Yld.	Recent Price	Time- liness	Safety	3-5 Yr. App. Pot.	3-5 Yr. Avg. Ret.	P/E
2141	AC	Alliance Capital Mgmt.	8.9%	27	2	3	75%	19%	10.3
816	ARV	Arvin Ind.	3.0	26	2	3	65	16	13.0
535 1580	MO	Philip Morris	4.6	39	2	3	65	18	13.4
525	KWR	Quaker Chemical	4.4	16	2	3	55	15	13.1
315	TBY	TCBY Enterprises	3.4	5 3/4	2	3	70	17	17.6
802	CTC	Telecom. de Chile ADR	2.8	32	1	3	70	17	15.0
591	TRN	Trinity Inds.	2.9	26	2	3	130	25	8.3
429	MRO	USX-Marathon Group	2.7	28	2	3	80	18	13.3
1401	X	USX-U.S. Steel Group	3.4	29	2	3	105	22	6.8
575	UIC	United Industrial Corp.	3.9	7 1/8	2	3	60	16	9.6

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